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**PGE Comments on 2-24-20 SB 100 Report Workshop**

*Additional submitted attachment is included below.*



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California Energy Commission  
Docket Unit, MS-4  
Re: Docket No. 19-SB-100  
1516 Ninth Street  
Sacramento, California 95814-5512

Re: Pacific Gas and Electric Company Comments on SB 100 Modeling Inputs and Assumptions Workshop

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to submit these comments on the California Energy Commission's (CEC) Modeling Inputs and Assumptions Workshop as part of the public process for developing the Joint Agency Report required by Senate Bill 100 (SB 100). PG&E supports California's clean energy goals, and is committed to partnering with the CEC, the California Public Utilities Commission (CPUC), the California Air Resources Board (CARB), and other energy agencies to chart a cost-effective and sustainable path to implementing SB 100. The Joint Agency Report required by SB 100 is a critical step in working to achieve SB 100's goal, and PG&E recognizes the challenges in this undertaking.

PG&E offers the following comments:

*I. Recommendations on Definitions*

PG&E reiterates its view that the "renewable portfolio standard (RPS) plus" scenario most closely aligns with the language in SB 100 on eligible technologies, which includes all "zero-carbon" resources. The RPS Plus scenario also aligns with the intent of SB 100, as reflected in Senator De Leon's letter to the Daily Journal<sup>1</sup>, which states, "the zero-carbon portion of SB 100 is intended to be more inclusive than the RPS in terms of the types of resources that are eligible. Specifically, that portion is intended to be inclusive of all zero-carbon resources, including RPS eligible resources and existing zero-carbon resources serving California customers. That portion of the bill is technology neutral – if an energy generation resource does not produce greenhouse gas emissions, it would be eligible to meet the 100%

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<sup>1</sup> Available at:

<https://leginfo.legislature.ca.gov/faces/pubSenDailyJrn2.xhtml?type=doc&sessionyear=20172018&pagenum=6071&sessionnum=0>

renewable and zero-carbon target.” In addition, allowing a broader set of eligible technologies can help reduce the costs of achieving the state’s ambitious climate policy goals. For example, Bistline and Blandford (2020)<sup>2</sup>, using a state-of-the-art energy-economic model of the U.S. electric system, find that “decarbonization costs are 11%–76% higher as technological options are removed from consideration.” Finally, reducing the cost of achieving electric-sector policy goals can help improve electricity affordability, which is critical to the state’s broader efforts to achieve economy-wide GHG goals through electrification. As a recent Legislative Analyst Office report<sup>3</sup> noted, “High electricity rates discourage adoption of some technologies—such as electric vehicles and electric appliances—that could be used to substantially reduce statewide GHGs.” For these reasons, we recommend the agencies remove the “no fossil fuel combustion” option from consideration. Instead, we encourage the agencies to address uncertainty about natural gas with carbon capture and sequestration (CCS) by varying its availability in the “resource availability” sensitivities, just as the agencies propose to do for offshore wind and new out-of-state transmission.

Similarly, PG&E encourages the agencies to adhere to the SB 100 definition of the policy -- “100 percent of all retail sales of electricity to California end-use customers by December 31, 2045 and 100 percent of electricity procured to serve all state agencies by December 31, 2045” – in performing the SB 100 study. Notwithstanding some stakeholder concerns “around a narrow interpretation of the scope of the SB 100 targets,” the statutory language is clear that the SB 100 policy applies to all retail sales. In addition, we note that any remaining GHG emissions in the electric sector can be studied in CARB’s next Scoping Plan, due by 2022, which is expected to analyze economy-wide carbon neutrality by 2045.

## *II. Recommendations on Modeling Scenarios*

PG&E has several recommendations regarding the scenarios under consideration for analysis. First, we encourage the agencies to focus most of their effort (and scenarios) on different electric resource build-outs and less of their effort (and scenarios) on different underlying demand forecasts. While there is significant uncertainty about likely economy-wide deep decarbonization scenarios, these issues are better addressed by economy-wide scopes and models such as CARB’s Pathways modeling in support of the Scoping Plan. For purposes of this modeling in RESOLVE, we encourage the agencies to focus on a reference case and one or two demand scenarios. Second, as described earlier, we encourage the agencies add natural gas with CCS as a resource availability sensitivity instead of varying its eligibility as a resource. Third, PG&E supports the agencies’ plan to include at least some cases where all zero-carbon resources are eligible for selection by the model. Finally, PG&E supports the inclusion of a reference scenario as a point of comparison to the policy scenarios that achieve the SB 100 goals.

## *III. Comments on Considering Affordability*

It is also critical for the CEC to include behind-the-meter (BTM) photovoltaic (PV) sensitivities, as the CPUC Integrated Resources Plan (IRP) process has shown that different levels of BTM PV can lead to vastly different total cost figures. For instance, in the 2017 IRP modeling, the difference between the high and low BTM PV scenarios resulted in a more than \$1B difference in annual costs to achieve the

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<sup>2</sup> John E.T. Bistline, Geoffrey J. Blandford, 2020. Value of technology in the U.S. electric power sector: Impacts of full portfolios and technological change on the costs of meeting decarbonization goals. Energy Economics, Volume 86. Available at: <https://doi.org/10.1016/j.eneco.2020.104694>

<sup>3</sup> Legislative Analyst Office, 2020. Assessing California’s Climate Policies – Electricity Generation. Available at: <https://lao.ca.gov/Publications/Report/4131>

state's GHG reduction goals in 2030 and had a significant impact on investment levels for other resources like utility-scale solar.<sup>i</sup> Similarly, PG&E's analysis of the CPUC's most recent Reference System Plan modeling shows that additional distributed energy resources would result in additional costs to meet California's GHG goals of \$500 million to \$2 billion per year through 2030—or cumulatively \$10+ billion more than needed through 2030.<sup>ii</sup>

PG&E also agrees with the comments of Matthew Freedman of The Utility Reform Network (TURN) during Session 3 of the workshop that significant adoption of distributed energy resources eligible for Net Energy Metering (NEM) can create unsustainable rate increases for all customers and create challenges to electrification and cost-effective achievement of SB 100 goals.

The current structure of the NEM program is inequitable – shifting significant costs from customers adopting renewable distributed generation to customers without these resources. For the year 2019 alone, the cost shift from NEM program participants to non-participants was approximately \$1.3 billion in PG&E's service area. In general, the customers who are able to take advantage of the NEM subsidy are wealthier than customers who do not or cannot install rooftop solar. The cost of distributed generation provided to the grid is significantly higher than the cost of utility-scale solar, and NEM allows customers to avoid sharing in the grid costs that are critical towards integrating increasingly high levels of renewable energy as California works towards the SB 100 goals.

PG&E further notes that the CPUC has made affordability a priority in several recent proceedings. To the extent that SB 100-related programs and rules transfer the costs of SB 100 targets onto customers, and especially if they are transferred onto customers that are less equipped to bear those costs or to benefit from programs and technology, these programs and rules threaten to make electricity substantially less affordable. Apart from its intrinsic harm to the disadvantaged, this affordability threat poses obstacles to political acceptance and customer adoption. Long-term analyses should include not only estimates of total implementation cost, but just as importantly, regular and transparent evaluations of who bears that cost. Such evaluations should include (at reasonable intervals) calculation of SB 100 effects on standard CPUC affordability metrics after they go into effect.

#### *IV. Comments on Reliability*

PG&E previously provided comments on how to assess reliability and is reiterating those points here for consistency. At the earlier Technical Workshop, CEC staff presented their plan to leverage the CPUC's RESOLVE modeling framework and to expand it for capacity expansion studies of the entire California footprint. PG&E agrees this is a reasonable initial step. However, PG&E recommends that the CEC's RESOLVE modeling work be supplemented by a more robust reliability assessment, to surface reliability issues that may have been overlooked by a capacity-expansion tool.

At a minimum, PG&E recommends the CEC study leverage the reliability modeling improvements made by the CPUC in its 2019/2020 IRP cycle (e.g., validate the RESOLVE portfolio under a production cost modeling tool such as SERVM; and develop and assign more accurate reliability contribution factors – in the form of Effective Load Carrying Capability (ELCC) value - to storage resources as a function of the overall amount of storage penetration on the system).

Thank you for the opportunity to comment on the SB 100 report development process. PG&E looks forward to continued engagement in the development of this report and at the upcoming technical workshops.

Sincerely,

/s/

Mark Krausse

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<sup>i</sup> Source: CPUC Proposed Reference System Plan, September 18, 2017, Appendix B: Additional Modeling Results – Sensitivities, Slide 186: BTM PV Sensitivities: Summary Results from RESOLVE

<sup>ii</sup> Based on the RESOLVE model results guiding the CPUC’s November 6, 2019 Proposed Reference System Plan for the 2019-2020 IRP.